

WHAT IS CLAIMED IS:

1. A projectile with lateral bulging effect for combating armored targets, said projectile comprising:

a cylindrical open-ended tubularly-shaped casing, having hollow interior portions, said casing having a constant uniform outer diameter along the axial extent thereof and being constituted of a material selected from the group of materials consisting of ; tungsten heavy metal; tungsten hardened metal; depleted uranium and; high strength steel; and a mass consisting of a bulging medium located in the interior of said hollow cylindrical tubularly-shaped casing and constituting an effective active charge, said hollow interior of the casing being of a stepped terminally-ballistically effective structure for accommodating the bulging medium, said casing and said bulging medium having leading ends terminating in flat impact surface extending perpendicularly of the longitudinal axis of said casing for impacting a target in surface contact, said bulging medium being selected from the group of materials consisting of glass-fiber reinforced plastic, polyethylene, nylon, aluminum, copper, lead, tantalum, synthetic resin-containing compressed wood and composites constituted of plastics and metal excluding iron and steel and being of a density and strength which is lower than the density and strength of the material of the casing, wherein the material of said casing upon impacting a target is ballistically more effective than the material of the effective active charge, such that upon the projectile impacting against the target, the bulging medium is axially retarded and thereby compressed within a compression zone proximate said leading end of the casing and so as to laterally bulge and impart a radially outward deflection to at least the leading end of the casing penetrating into the target.

2. A projectile as defined in claim 1, wherein the bulging medium is arranged in a forward zone of the terminal-ballistically effective structure.

3. A projectile as defined in claim 1, wherein the bulging medium is arranged in a rear zone of the terminal-ballistically effective structure.

4. A projectile as defined in claim 1, wherein the bulging medium is arranged in a multiple way successively behind one another in the terminal-ballistically effective structure.

5. The projectile as claimed in claim 10, wherein the tubular casing has a length of approximately 40mm and an outer diameter of approximately 6mm.

6. The projectile as claimed in claim 1, wherein the bulging medium in the interior of said casing incorporates pyrophorous additives.

7. The projectile as claimed in claim 6, wherein said pyrophorous additives are selected from the group of materials consisting of cerium and zirconium.

8. A projectile as defined in claim 1, wherein said bulging medium (1) is in the form of a material which is substantially terminal-ballistically ineffective; and said casing being an outer body (2) radially encompassing the bulging medium (1) and made from a penetration material which is considerably more terminal-ballistically effective.

9. A projectile as defined in claim 8, wherein the two materials show a considerable difference concerning each respective density.

10. A projectile as defined in claim 8, wherein the bulging medium (1) is made entirely or partly of a material selected from the group consisting of light metal and an alloy thereof, a fibre-reinforced plastic material, a duroplastic or thermoplastic plastic material, an elastomeric material, a dense and dynamically soft metal or a metal compound, and powdery materials.

11. A projectile as defined in claim 8, wherein the bulging medium (1) contains a material with a pyrophorous effect.

12. A projectile as defined in claim 1, wherein the bulging medium (1) contains a material with an explosive effect.

13. A projectile as defined in claim 8, wherein the bulging medium is made of a mixture from components selected from the group consisting of light metal and its alloy, fibre-reinforced plastic material, a duroplastic or thermoplastic plastic material, elastomeric material, a dense and dynamically soft metal and a metal compound, powdery material, material with pyrophorous effect, and material with explosive effect.

14. A projectile as defined in claim 8, wherein the bulging medium (1) is entirely or partly liquid.

15. A projectile as defined in claim 8, wherein the bulging medium (1) is selectively pressed, injected, cast or introduced of a pressure below atmospheric into the outer body (2).

16. A projectile as defined in claim 8, wherein the bulging medium (1) is made entirely or partly of prefabricated structures.

17. A projectile as defined in claim 8, wherein the bulging medium (1) is made entirely or partly of two or more components which are slid into one another.

18. A projectile as defined in claim 8, wherein the bulging medium (1) is made entirely or partly of two or more components which are arranged successively behind one another.

19. A projectile as defined in claim 8, wherein the bulging medium (1) and the outer body (2) are connected by a thread (15).

20. A projectile as defined in claim 8, wherein the outer body (2) is made of a material selected from the group consisting of sintered or pure metal of high density, brittle material, and a steel of high hardness.

21. A projectile as defined in claim 8, wherein the outer body (2) allows subprojectiles or splinters to originate in a statistically distributed manner.

22. A projectile as defined in claim 8, wherein the outer body (2) is pre-notched on the inside (22) or outside (23), or is respectively embrittled there by heat treatment.

23. A projectile as defined in claim 1, wherein the outer body is made of a ring of prefabricated individual longitudinal structures which are mechanically joined or glued or soldered together.

24. A projectile as defined in claim 8, wherein the outer body contains entirely or partly segments, or prefabricated subprojectiles or splinters.

25. A projectile as defined in claim 8, wherein the outer body has an inner diameter which is variable over length.

26. A projectile as defined in claim 8, wherein the outer body has an outer diameter which is variable over length.

27. A projectile as defined in claim 8, wherein the outer body has well thicknesses which are variable over length.

28. A projectile as defined in claim 8, wherein the bulging medium is arranged several times radially in a structure with casings which are terminal-ballistically effective and enclose the respective bulging medium.

29. A projectile as defined in claim 8, wherein the bulging medium is arranged once or several times radially (1, 1i) and once or several times axially (1e, 1f, 1g, 1h) in a terminal-ballistically effective structure.

30. A projectile as defined in claim 8, and further comprising a hollow aerodynamic tip.

31. A projectile as defined in claim 30, wherein the bulging medium is provided with a pocket-like recess on its face side.

32. A projectile as defined in claim 8, and further comprising a massive one-part or multi-part tip.

33. A projectile as defined in claim 32, wherein the tip reaches into the bulging medium of the projectile or war-head.

34. A projectile as defined in claim 8, further comprising a tip which is filled fully or partly with a bulging medium.

35. The projectile of claim 1 as a spin-stabilized full caliber projectile.

36. The projectile of claim 1 as an aerodynamically stabilized full caliber projectile.

37. The projectile of claim 1 as a spin-stabilized subcaliber discarding sabot projectile.

38. The projectile of claim 1 as an aerodynamically stabilized discarding sabot projectile.

39. The projectile of claim 1 in the form of a hybrid projectile.

40. The projectile of claim 1 in the form of a projectile with combined stabilization.

41. An unguided missile, comprising one or several war-heads according to claim 1.

42. A guided missile, comprising one or several war-heads according to claim 1.

43. A dispenser, such as a container under an aircraft, comprising subprojectiles in the form of effective bodies to be ejected according to claim 1.

44. A distance dispenser such as a self-flying container under an aircraft, comprising subprojectiles in the form of effective bodies to be ejected according to claim 1.

45. A guided or unguided missile in the form of subprojectiles such as ejected effective bodies of a larger unit according to claim 1.